MFJ 1661 PORTABLE SCREWDRIVER ANTENNA

Introduction

The MFJ-1661 manually tuned screwdriver antenna was designed for continuous operation from 10-40 meters using a supplied whip 10 feet in length. The supplied 4 ½ foot whip can be used for mobile or limited space operation from 20-6 meters.

The antenna is tuned by loosening a thumbscrew and moving the aluminum cover up or down the loading coil. The loading coil is made of tin plated copper wire wound onto a PVC pipe core. Copper Beryllium finger-stock is used to make the connection between the aluminum cover and the loading coil.

WARNING: SERIOUS RF BURNS AND INJURY CAN OCCUR IF CONTACT IS MADE WITH THE ANTENNA. PLACE THE ANTENNA IN AN OUT OF REACH LOCATION.

Portable Operation And Mounting

The MFJ-1661 becomes a very efficient portable antenna when used in combination with a tripod and a ground radial system. The antenna can be easily mounted onto a tripod such as the MFJ-1918 or similar mount for portable operations. The MFJ-342 3/8 pipe mount easily attaches the antenna to a tripod. The antenna must be properly connected to a ground radial system.

Portable Setup

1. Remove the antenna from the packaging.
2. Place a 3/8“ lock washer onto the 3/8 X 24 thread of the desired whip.
3. Carefully screw the desired whip into the 3/8 coupling nut located on top of the loading coil.
4. Secure the whip in place with a 9/16 wrench.
5. Place a 3/8” lock washer onto the 3/8 X 24 mount on the base of the loading coil.
6. Screw the antenna into the desired mount 3/8 X 24 female mount such as the MFJ-342.
7. Secure the antenna in place using a 9/16” wrench.
8. Attach the counterpoise system to the ground shield of the feed-line. If using a MFJ-342 or similar mount attach the ground radials to one of the ¼” bolts located on the mount. Check to make sure the ground system does not come into contact with the screwdriver antenna.

Mobile Operation

The MFJ-1661 may be used as a mobile antenna by connecting the supplied 4 foot whip onto the antenna. The antenna will resonant from 20-6 meters with the 4-foot whip installed. Also the 10-foot whip may be used when the vehicle is parked. This will allow operation from 6-40 meters. **NEVER ATTEMPT TO USE THE 10-FOOT WHIP WHILE A VEHICLE IS IN MOTION. DAMAGE OR SERIOUS INJURY CAN AND WILL OCCUR IF THE ANTENNA COMES INTO CONTACT WITH OVERHEAD OBSTRUCTIONS OR POWER LINES.**

Mobile Setup

1. Remove the antenna from the packaging.
2. Place a 3/8“ lock washer onto the 3/8 X 24 thread of the desired whip.
3. Carefully screw the desired whip into the 3/8 coupling nut located on top of the loading coil.
4. Secure the whip in place with a 9/16 wrench.
5. Place a 3/8” lock washer onto the 3/8 X 24 mount on the base of the loading coil.
6. Screw the antenna into the desired mount.
7. Secure the antenna in place using a 9/16” wrench.
8. Attach a vehicle ground to the ground shield of the feed-line. The ground should be attached directly to the vehicle frame or body. Check to make sure the ground system does not come into contact with the screwdriver antenna.

Impedance Matching

For proper feed-point matching and operation, an impedance matching coil will need to be placed between the antenna and a ground. This will be more necessary for the lower HF bands such as 40 meters. Attach one end of an impedance matching coil to the wing nut on the lower part of the antenna. Attach the opposite end to the ground radial system or vehicle ground attached to the coax shield depending on your installation.

Tuning

The MFJ-1661 can be tuned very easily using a SWR analyzer such as the MFJ-259B. A radio and an SWR meter may also be used. The resonant frequency of the antenna is adjusted by loosening the thumbscrew located on the side of the antenna. The antenna should be setup in the desired operating location using the instructions above. The ground system must also be installed for proper operation. Follow the steps below to choose the desired operating frequency.

1. Check to see that the antenna is setup properly as instructed above.
2. Extend the whip to the full length.
3. Check the resonance point (a minimum SWR) of the antenna with the coil completely shorted out. The coil is completely shorted when the coil is completely covered.
4. If a resonance point cannot be found check all of your connections including your ground radial system.
5. To lower the operating frequency loosen the thumbscrew and slide the coil cover down the coil. To increase the resonant frequency slide the coil cover up the antenna. Tighten the thumbscrew and check the SWR as was done in step 3.
6. When the desired frequency is obtained tighten the thumb screw. Repeat the above steps to find additional operating frequencies.